STATION VIEW™

DUPLEX PUMP CONTROLLER

User Manual

PRIMEX
MUNICIPAL WATER CONTROL SOLUTIONS
WWW.PRIMEXCONTROLS.COM

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WARNINGS

Failure to read and understand the information provided in this manual may result in personal injury or death, damage to the product or product failure. Please read each section in its entirety and be sure you understand the information provided in the section and related sections before attempting any of the procedures or operations given.

Failure to follow these precautions could result in serious injury or death. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electrical Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within the controller housing.

⚠WARNING

ELECTRICAL SHOCK HAZARD

A qualified service person must install and service this product according to applicable codes and electrical schematics. Disconnect power prior to servicing an equipment with the Station View™ controller.

- Do not connect power to this equipment if it has been damaged or has any missing parts.
- The Station View™ contains no serviceable parts; do not attempt to repair this equipment.
- Do not install in areas with: excessive or conductive dust, corrosive or flammable gas, moisture or rain, excessive head, regular impact shocks, or excessive vibration.

⚠WARNING

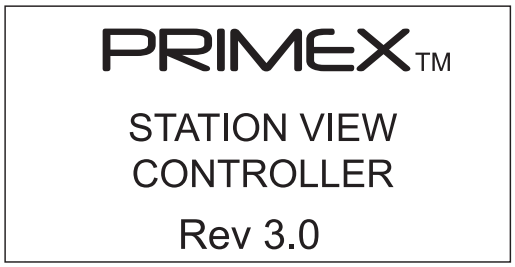
EXPLOSION OR FIRE HAZARD

Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

INTRODUCTION & SPECIFICATIONS

Congratulations, and thank you for your purchase of the Station View™ controller. This manual explains the features and operations of the Station View™ controller which was designed specifically for wastewater pump stations. It can be configured to use a level transducer with two (2) back up float switches, or with four (4) float switches without a level transducer.

POWER UP SCREEN & REVISION



GENERAL

Duplex pump controller.
4-20mA transducer with (optional) 2 back up floats (High + low)
Or 4 float Switches (Stop/Start/Lag/High level)
Pump amps monitoring
Pump flow monitoring (with level transducer)
Pump HOA selector switch in AUTO monitoring
Power loss monitoring
Graphic display with easy navigation and intuitive setup.
LCD backlit display. 128x64 pixels
Real Time clock

CONTROLLER FEATURES

Level/flow monitoring
Pump level in feet + bar graph
Float switch status indication (when using float switches)
Pump GPM. (using volumetric calculation with level transducer)

PUMP CONTROL AND PROTECTION

Automatic pump alternation
Alternation can be forced to start a particular pump first every time
Pump dry run protection (based on motor Amps + timer)
Pump run indication
Pump Amp indication (with current transducer)

SYSTEM

24hrs data log + 7 days of historical data
- Volume pumped (with transducer)
- Number of starts for each pump
- Run time for each pump
- Average GPM for each pump (with transducer)

Real time clock
Password protection
Alarm log
Level simulation (with level transducer)

ELECTRICAL SPECIFICATIONS

10 Digital inputs
2 analog inputs (4-20mA)
8 digital outputs (6 relay + 2 transistors)
24Vdc power, 5.2W

COMMUNICATION

SCADA compatible
Serial port: RS 485 Modbus RTU slave
Optional cellular remote monitoring (PRIMEX™ PUMP WATCH™)

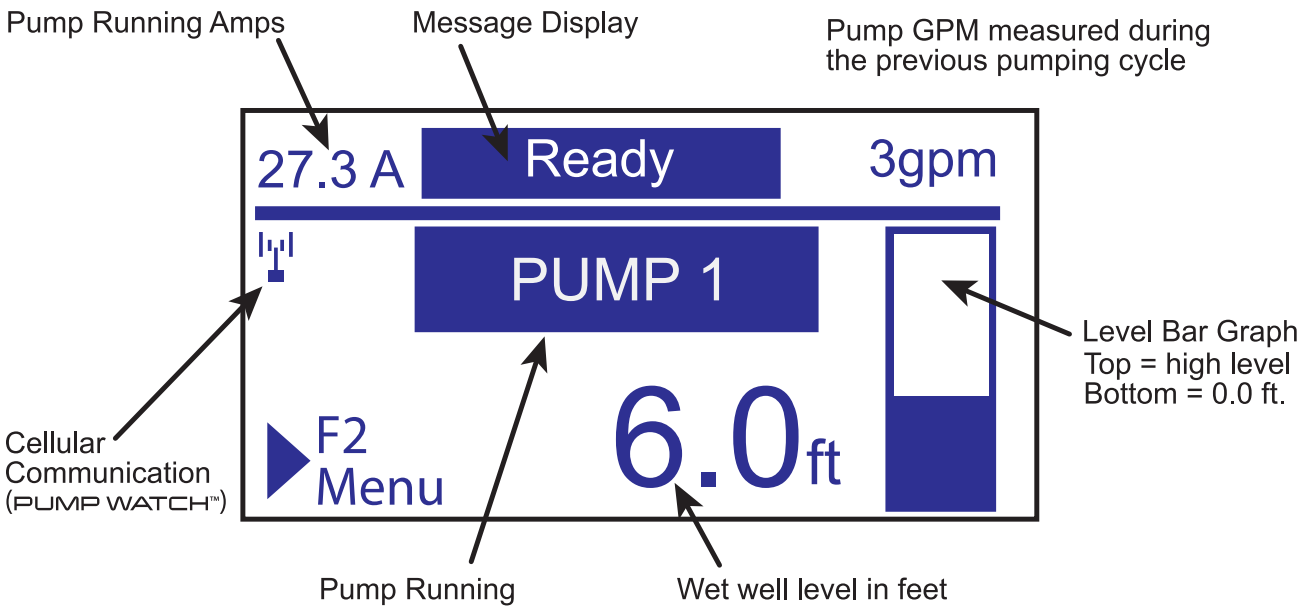
CERTIFICATION

UL /CE listed

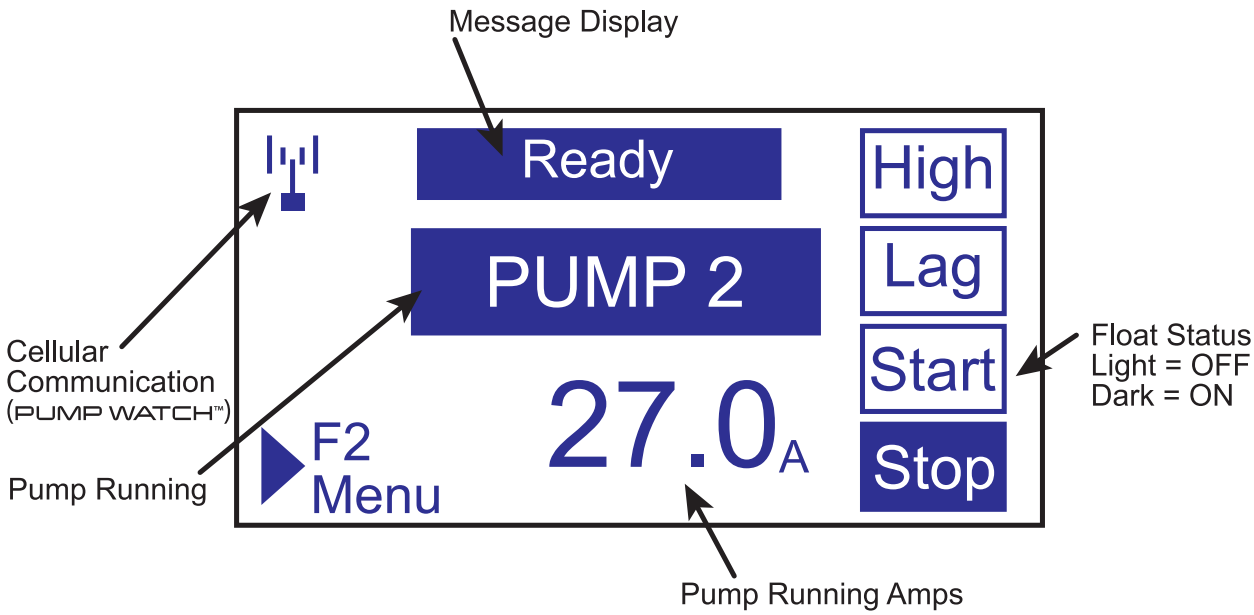
MAIN SCREEN

The main screen gives the operator an overview of the lift station status.

Level Transducer Mode

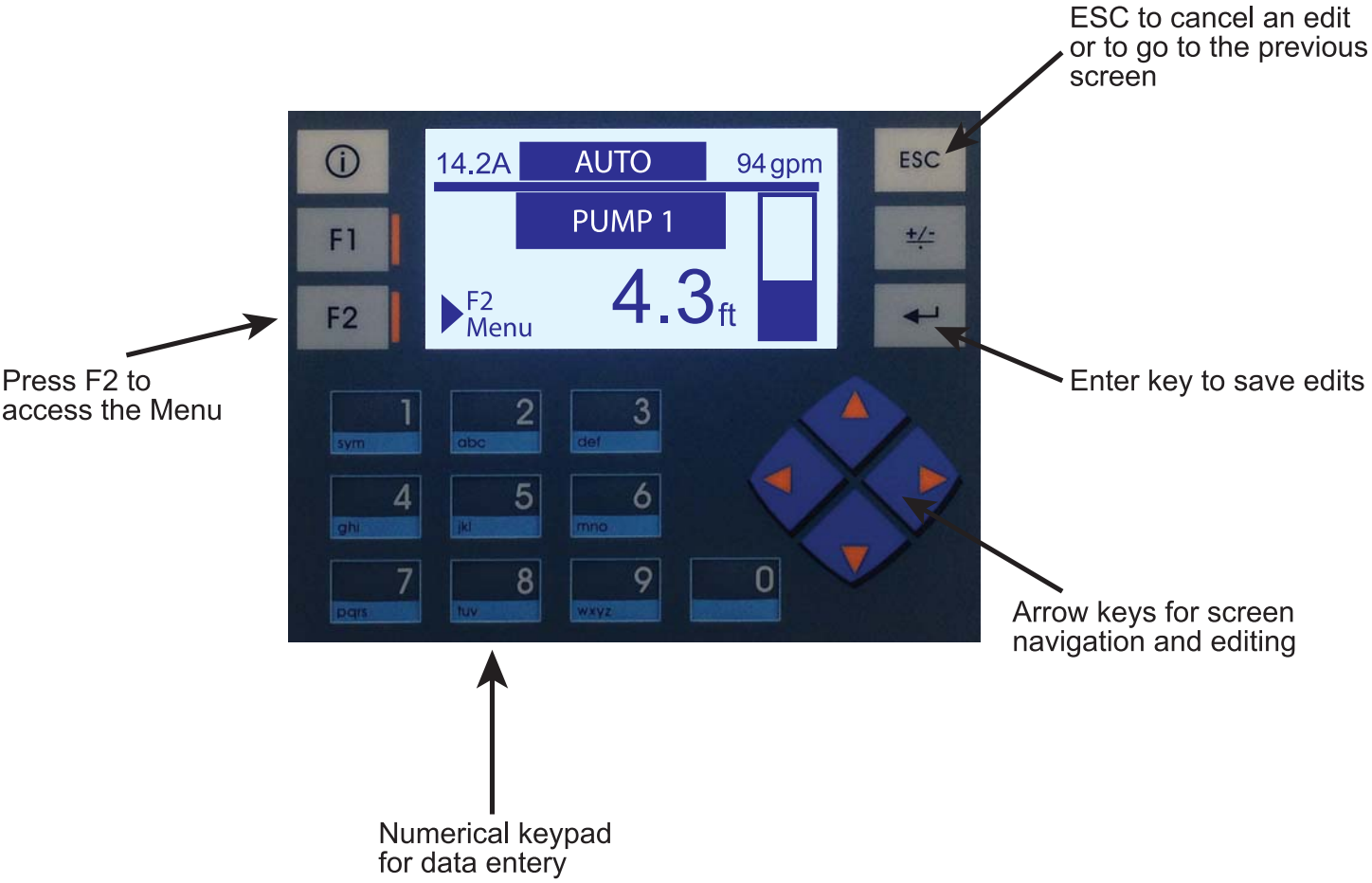


Float Switches Mode



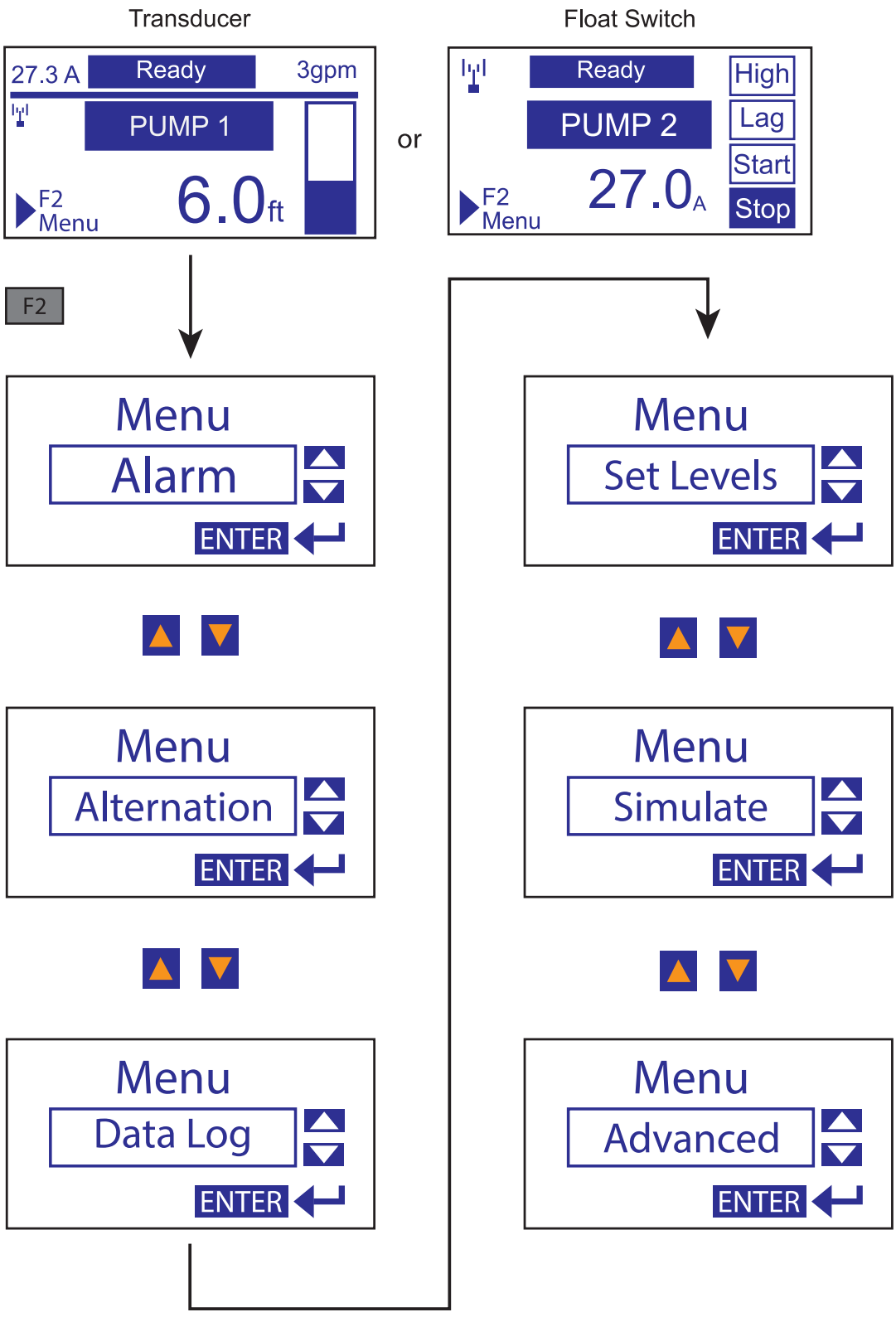
KEY PAD OPERATION

The controller keypad is used for screen navigation and data entry.



MAIN MENU NAVIGATION

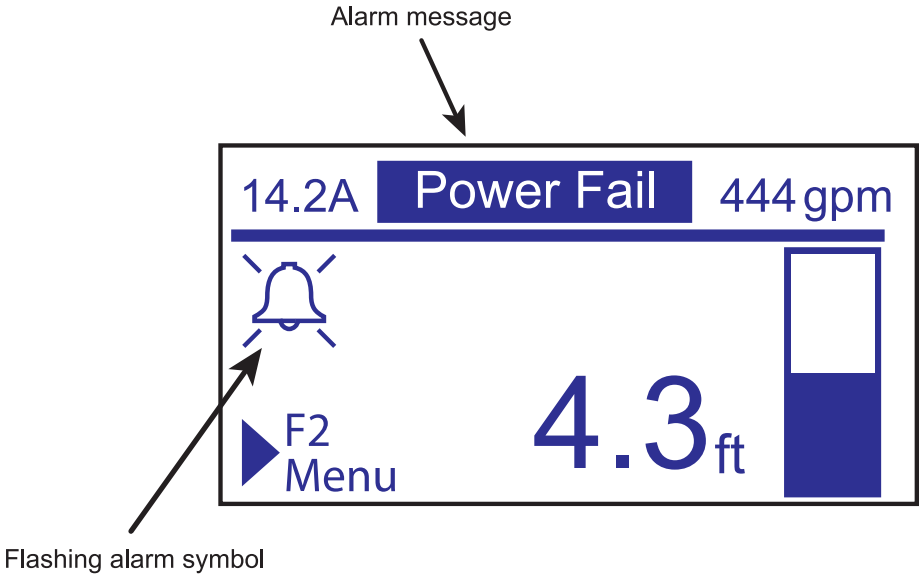
Navigation from the Main screen to the Menu Screens.



Press ESC to go back to the previous screen at any time.

ACTIVE ALARMS

If an alarm event occurs, it is displayed on the message bar on the Main Screen. A flashing alarm bell is also displayed.



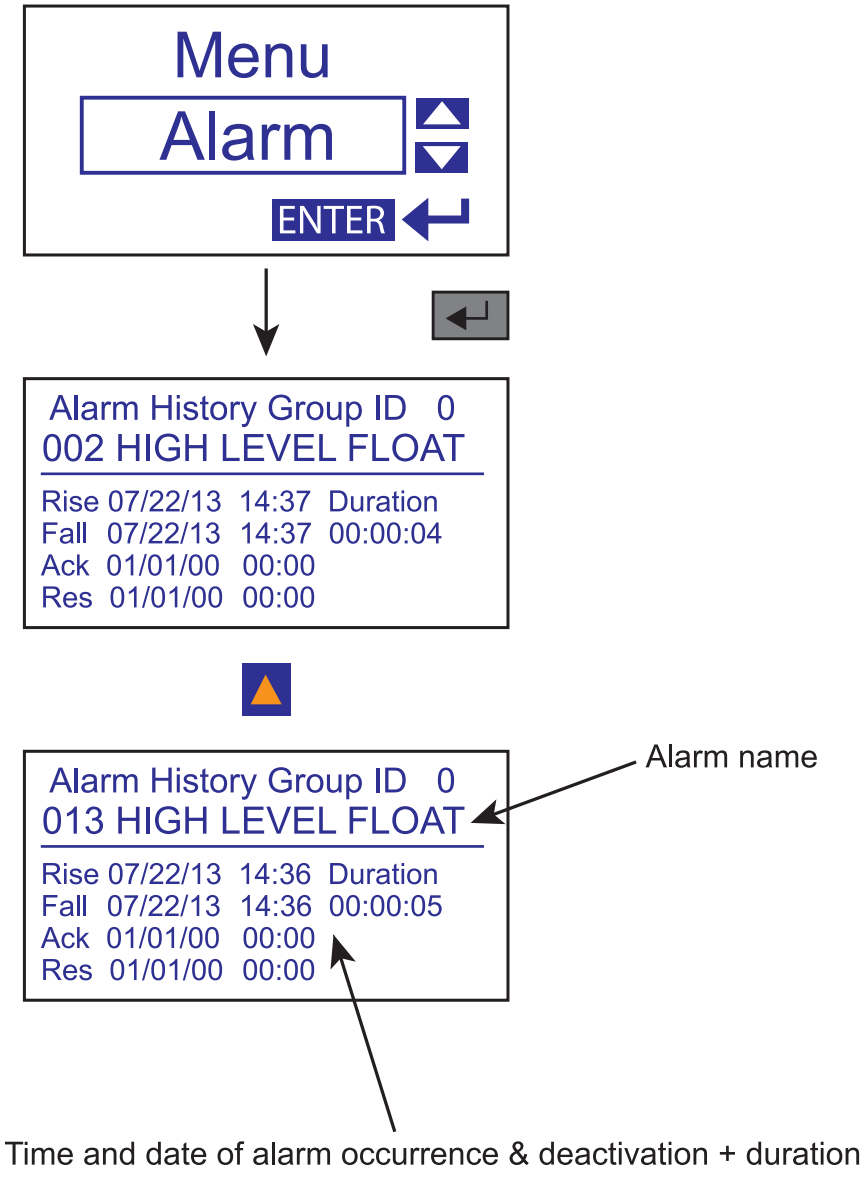
Possible alarms include:

#	DISPLAY	DEFINITION	FIX
0	**HIGH LEVEL XDCR**	Level in the wet well has exceeded the High Level Set point	Check pump operation, check in flow, check level transducer
1	**MAX RUN TIME**	Pump running longer than allowable Run time	Check pump operation, check in flow, check level transducer
2	**HIGH LEVEL FLOAT**	High level float is ON (up)	Check pump operation, check in flow, check level transducer
3	**LOW LEVEL FLOAT**	Low level float is OFF (down)	Check transducer
4	**HIGH AMPS**	Pump amps higher than expected (after time delay)	Check pump, check voltage (low or imbalance)
5	**DRY RUN**	Pump amps lower than expected for time delay	Check transducer, check low level float, check pump
6	**LEVEL SENSOR OPEN**	Transducer signal is less than 4mA	Check transducer connection, check transducer and vent tube
7	**LEVEL SENSOR SHORT**	Transducer signal is more than 20mA	Check transducer
8	**P1 OL/OT**	Pump 1 Overload trip or Over temp trip	Check pump operation, clogging
9	**P2 OL/OT**	Pump 2 Overload trip or Over temp trip	Check pump operation, clogging
10	**STOP FLOAT FAIL**	Stop float out of sequence	Check float tree
11	**START FLOAT FAIL**	Start float out of sequence	Check float tree
12	**LAG FLOAT FAIL**	Lag float out of sequence	Check float tree
13	**CURRENT SENSOR OPEN**	Current sensor signal is less than 4mA	Check transducer connection, check transducer
14	**POWER FAIL**	Power loss or Phase loss to the control panel	Check incoming power and phase loss monitoring setting (if used)
15	**ILLEGAL ENTRY**	Unauthorized personnel are tampering with the control panel	Control access to the control panel

ALARM HISTORY

The Alarm History of the control panel can be accessed via the Alarm Menu. The last 14 alarm events are recorded with time and date stamp. The last alarm recorded is displayed first.

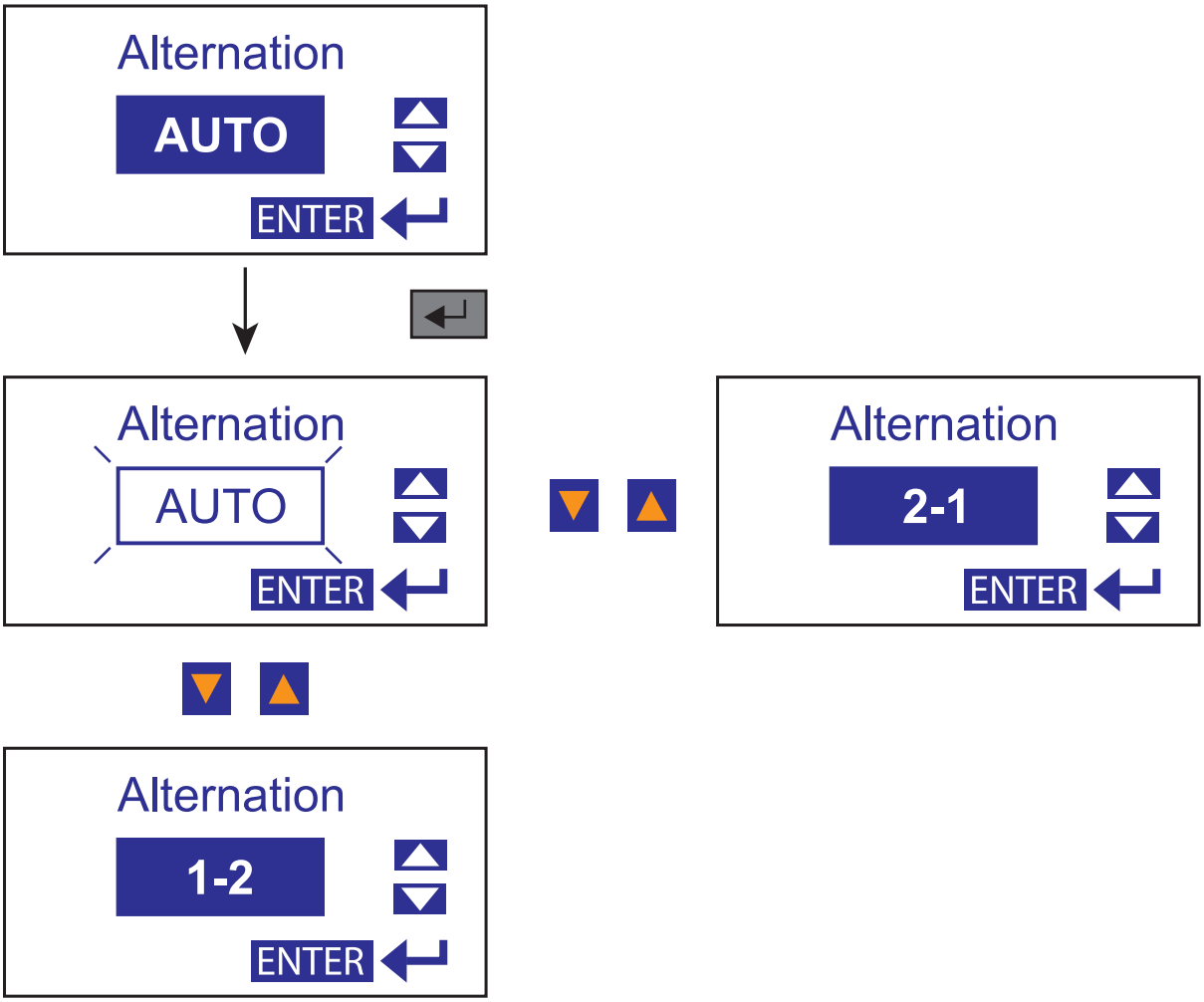
Use the ▲ to view previous alarms.



Press ESC to go back to the previous screen at any time.

ALTERNATION

The alternation mode is set to AUTO by default. The pump will alternate operation during each call to run. It is possible to force the alternation sequence to start the same pump every time. This is typically done to equalize run times.

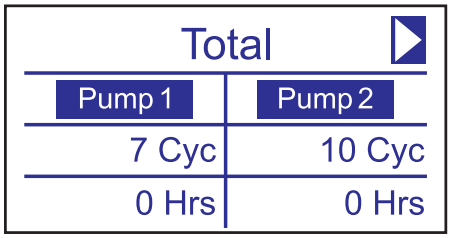


If 1-2 is selected, P1 will start every time, and P2 will only be used as a lag pump.
If 2-1 is selected, P2 will start every time, and P1 will only be used as a lag pump.

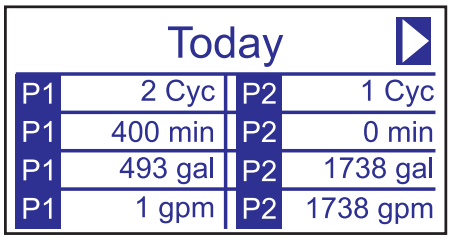
Press ESC to go back to the previous screen at any time.

DATALOG

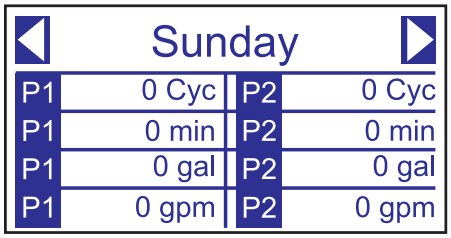
The Station View™ controller will log daily station data for 7 days + today's data since midnight. This data is very useful for tracking high in-flow events and pump performance.



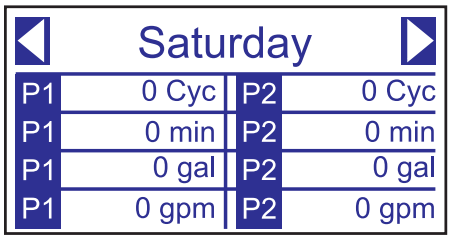
Total accumulated data



Today's data since 0:00 (Midnight)



Sunday's data (24 hr period)

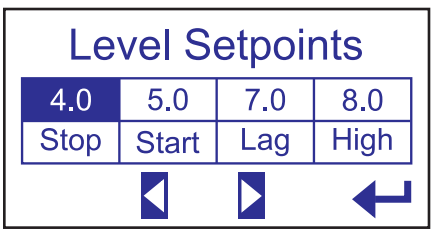


Saturday's data (24 hr period)

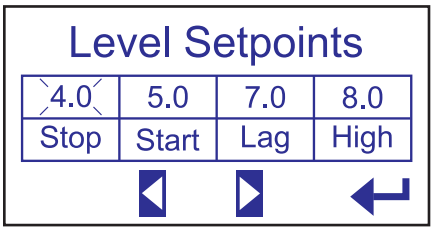
Cyc = number of cycles (pump starts)
min = pump run time in minutes
gal = gallons pumped (only available if a level transducer is used)
gpm = average GPM (only available if a level transducer is used)

SET LEVELS

This screen is only accessible if in “Level Transducer” mode. This mode is used for setting the level set point for proper pump operation.



Use ◀ ▶ to select the set point to be edited



Use the numerical keypad to enter the desired value and press ↵

Use +/- for decimal point. Max input value is 99.9 ft.

Stop = Stop level. All pumps will stop when the level drops below this value.
Start = Start level. The lead pump will start when the level rises above this value.
Lag = Lag level. The lag pump will start when the level rises above this value.
High = High level alarm. Activates the beacon and horn.

When the lead or lag pump starts, they will continue to run (latched) until the level drops below the stop level or a fault occurs. Only pumps in AUTO will run.

Backup float switch operation:

Two (2) backup floats are strongly recommended when using a level transducer:

<u>High level float:</u>

All pumps will run when activated until the level drops below the Low level float.
Activates the alarm beacon and horn.

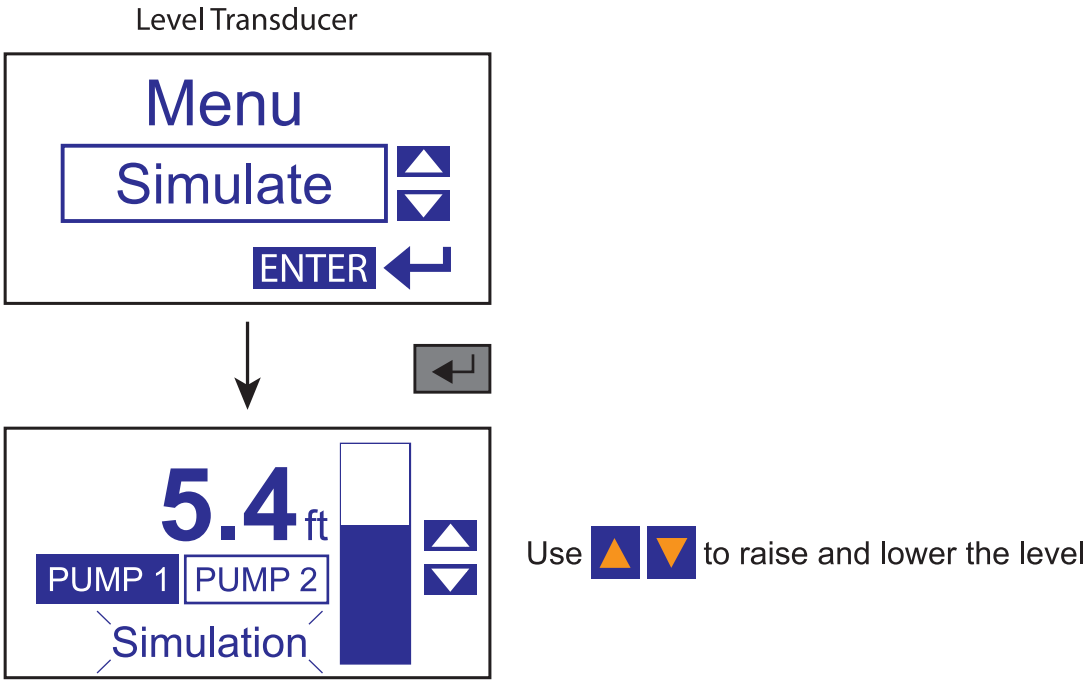
<u>Low level float:</u>

If the level drops below the Low level float switch, it will stop any pump operation in automatic mode. The purpose of the Low level float switch is to protect the pumps against damage resulting from dry run condition.

SIMULATE

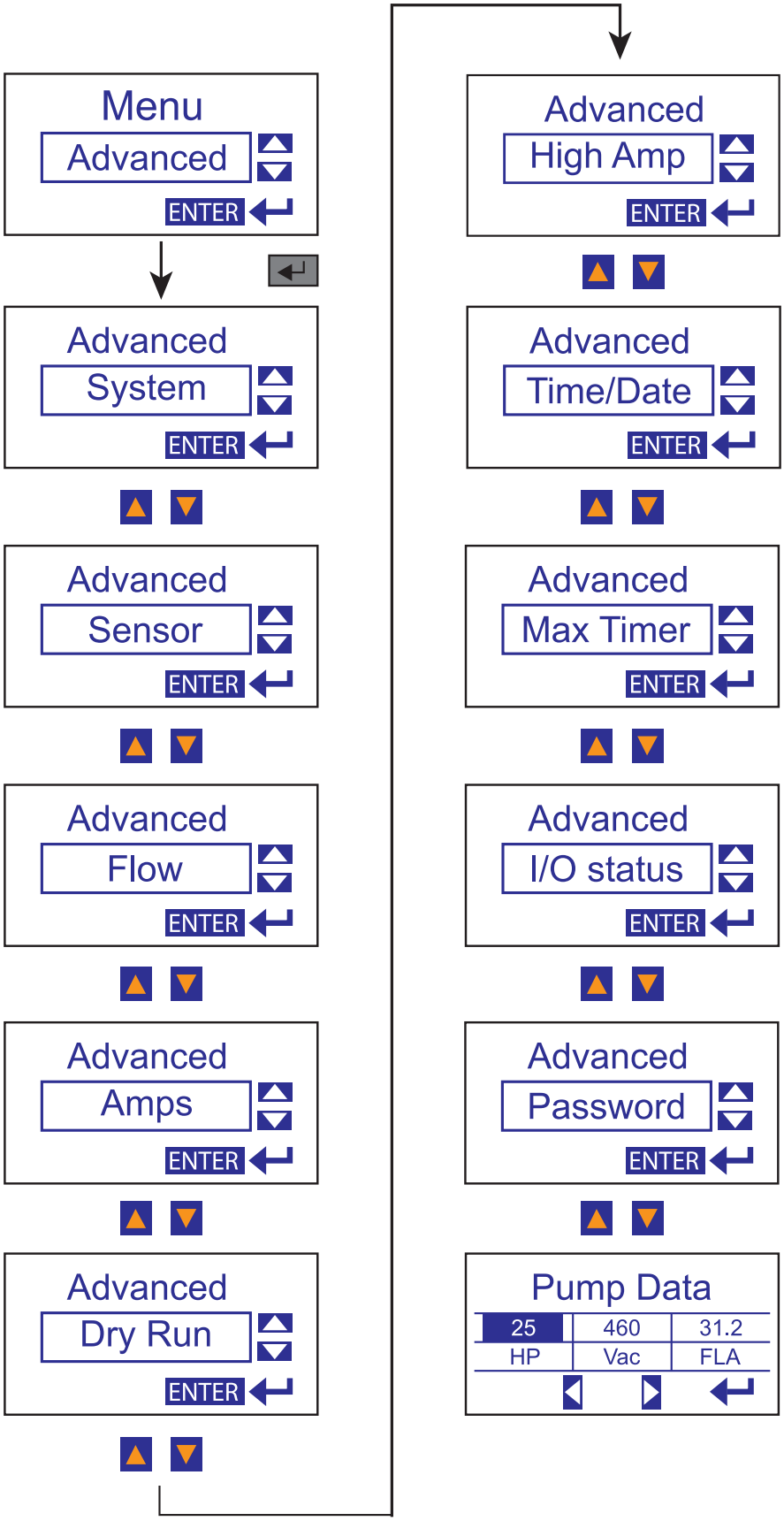
The level simulation function can be used to verify that the pumps are starting and stopping according to the level set points. This function allows the operator to manually raise or lower the measured level.

Caution: Pump will start and stop while using this function. Pump dry run is possible if no backup floats are used or by-passed.



Note: the level simulation screen will time out after 10 seconds of inactivity and return to the measure level.

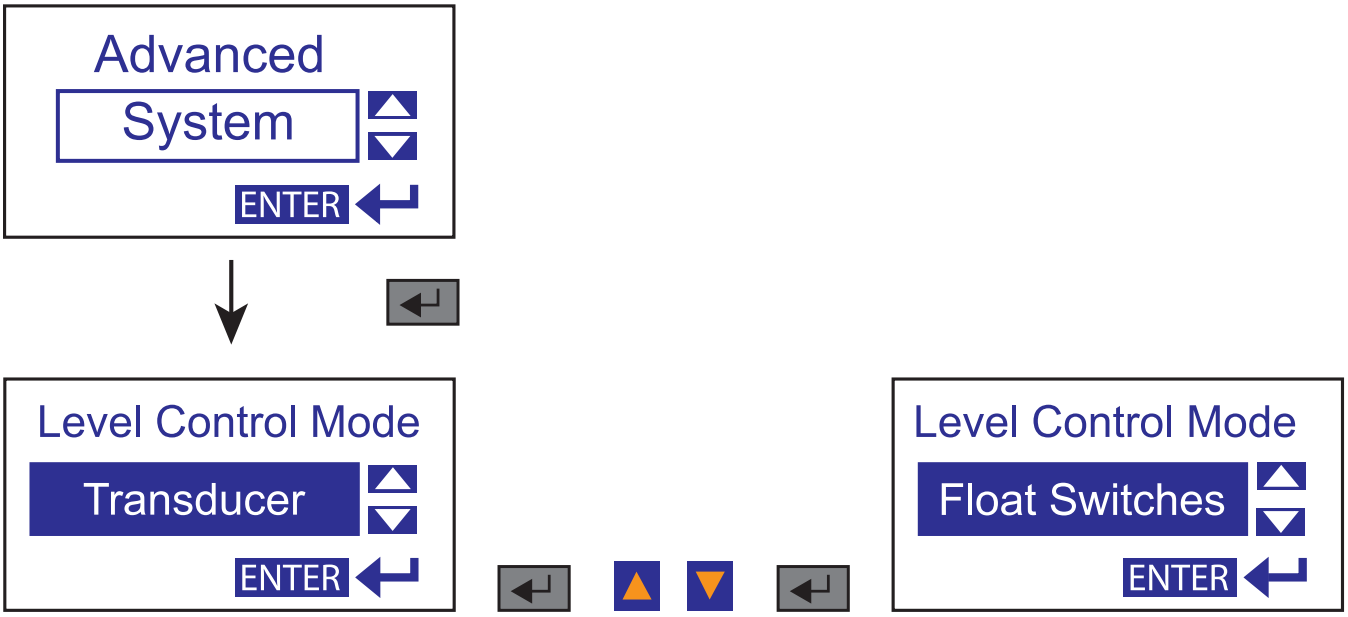
ADVANCED SETUP (MENU NAVIGATION)



Press ESC to go back to the previous screen at any time.

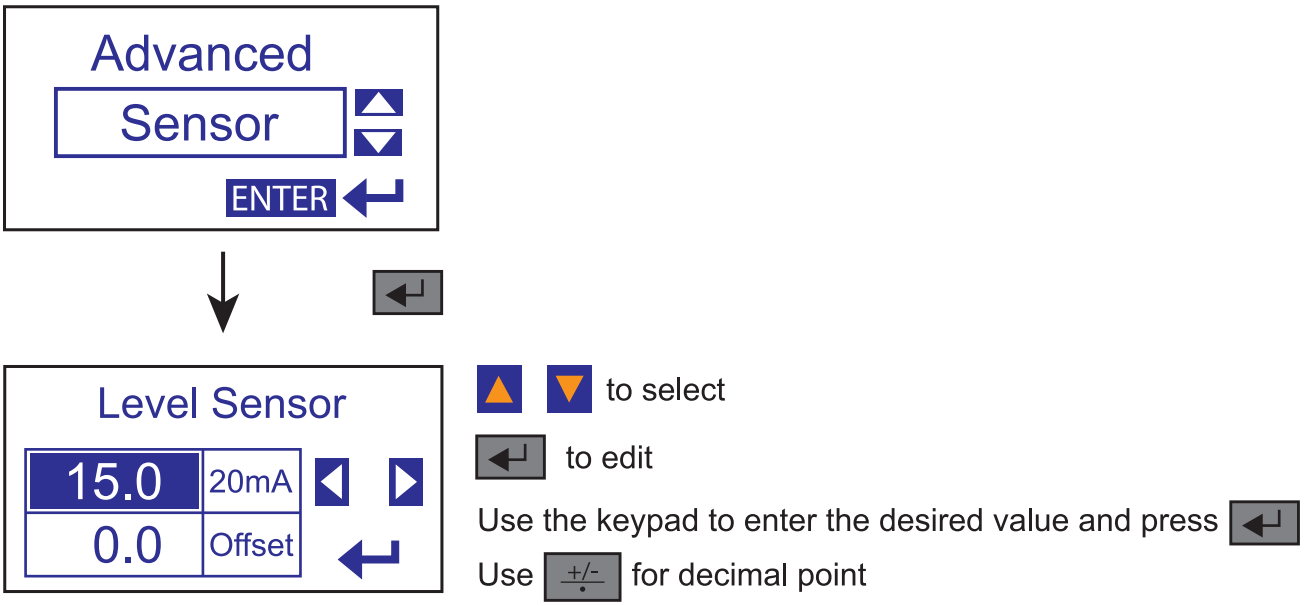
SYSTEM (ADVANCED SETUP)

The Station View™ controller can be configured to operate using a 4-20mA level transducer with 2 backup float switches or with 4 float switches and no transducer. See the electrical schematic for sensor connections.



SENSOR (ADVANCED SETUP)

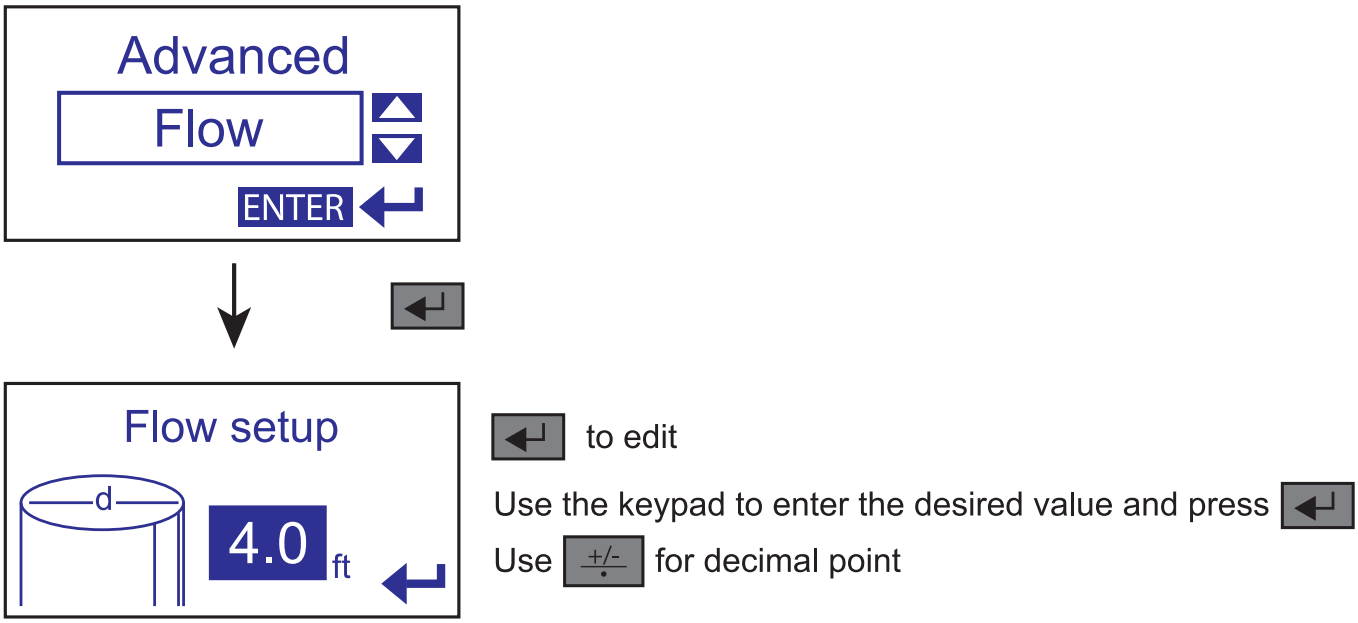
Entering the measuring range of the level transducer. This data is provided with the level transducer.



Example: 0-10psi range level transducer = 0-23.0 ft. (1psi = 2.30 ft.) Set 20mA=23.0 ft
Some transducers are already calibrated in ft. (Max value for 20mA is 99.9 ft)
When using a submersible pressure transducer, 0.0 ft. represents the level at the bottom of the transducer and not the wet well. If the transducer is mounted 2.0 ft off the bottom of the tank, set the offset = 2.0 ft. (Max value -10.0~10.0 ft)

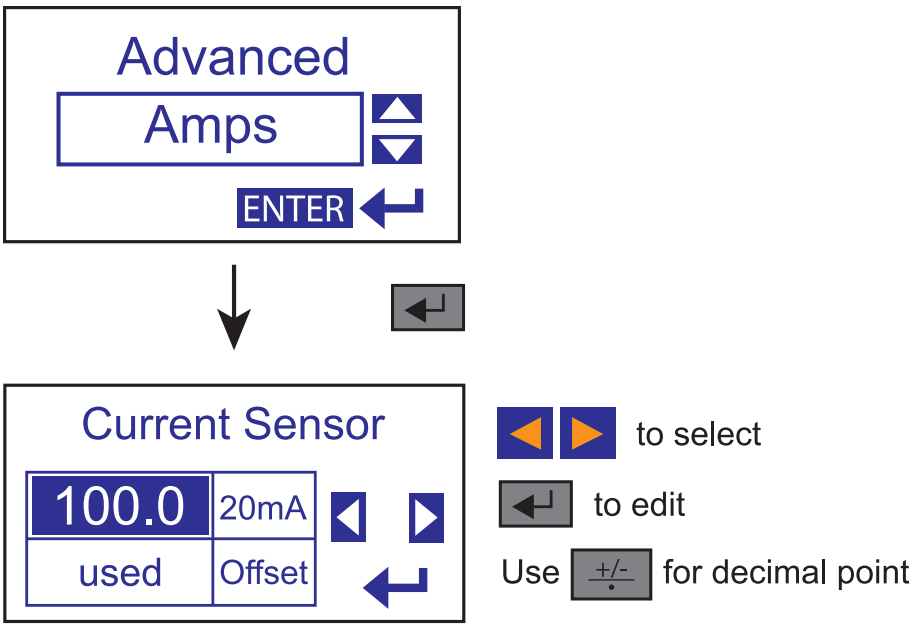
FLOW (ADVANCED SETUP)

Volumetric flow measurement is available when a level transducer is used in a cylindrical tank. The controller calculates the volume of liquid based on the level. The flow is flow rate is calculated by using the volume and the fill/discharge times. The in-flow and the discharge flow is measured.



AMPS (ADVANCED SETUP)

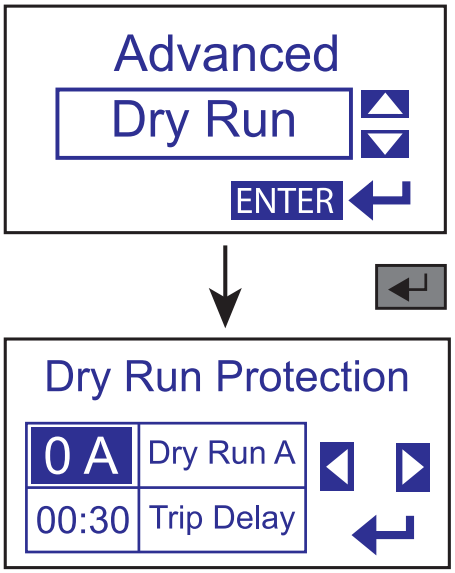
Entering the measuring range of the current transducer.



The Station View™ controller uses a single current sensor input for multiple pumps. It combines the pump run input with the current signal to determine the current for each pump. The measuring range of the current transmitter is typically listed on the device.

DRY RUN PROTECTION (ADVANCED SETUP)

Dry Run protection uses the motor Amps measurement to determine whether a pump is running dry (no load). For a submersible pump the current draw will typically drop 30% when running dry. Please consult your pump manufacture for this value. The Amp set value corresponds to the minimum Amp value that the pump should draw during normal operation. If the Amps drops below this value for longer than the “Trip delay” the controller will stop the pump and display a “Dry Run” fault. The “trip Delay” time is used to avoid nuisance tripping. If a pump trips on Dry Run, the next pump will be called to run. The Dry Run fault automatically reset after 2 minutes. Set to “0.0A” to disable this function.



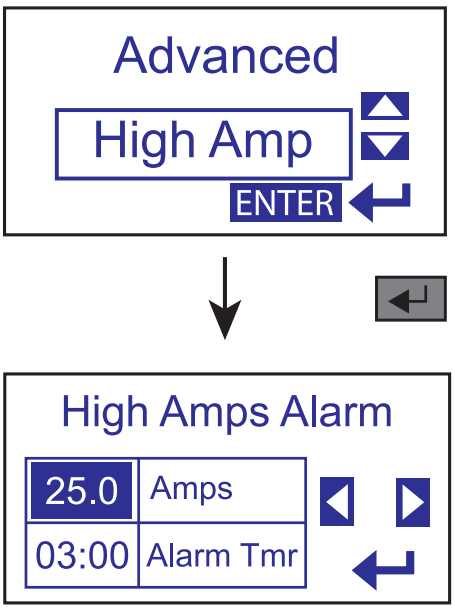
to select

to edit

Use +/- for decimal point (Max input value 999.9 A)

HIGH AMP (ADVANCED SETUP)

High Amp Alarm also uses the motor Amps measurement to determine if a pump is running at a higher than expected Amp value. This could be an indication of ware, clogging or changes in the head conditions in the pumping system. This value should be set lower than the motor starter overload trip setting. The “trip Delay” time is used to avoid nuisance tripping. If a High Amp alarm is triggered, it will display the fault on the Screen and close the general alarm relay. This fault does not stop the pump, it is an alarm only. Set to 0.0 A to disable this alarm function.



to select

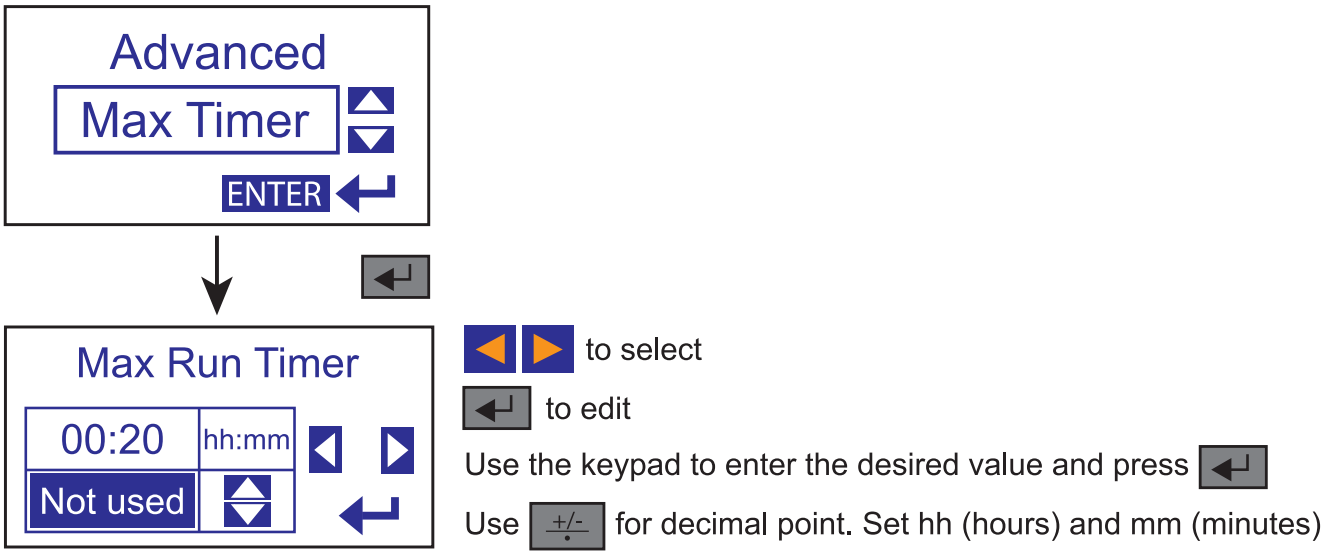
to edit

TIME & DATE (ADVANCED SETUP)

It is important that the correct time and date is entered for logging and alarm data.

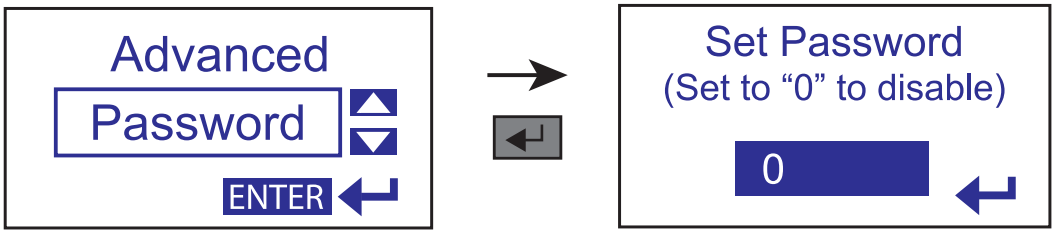
MAX RUN TIMER (ADVANCED SETUP)

The Max Run Timer function is used to alarm and shut down a pump that has exceeded the allowed run time programmed below. To disable this function, set to “Not Used”.



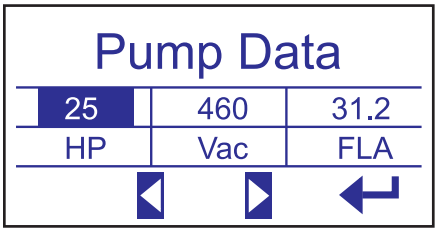
PASSWORD (ADVANCED SETUP)

The password function is designed to prevent unauthorized access to the Menu. Set to “0” to disable this function.



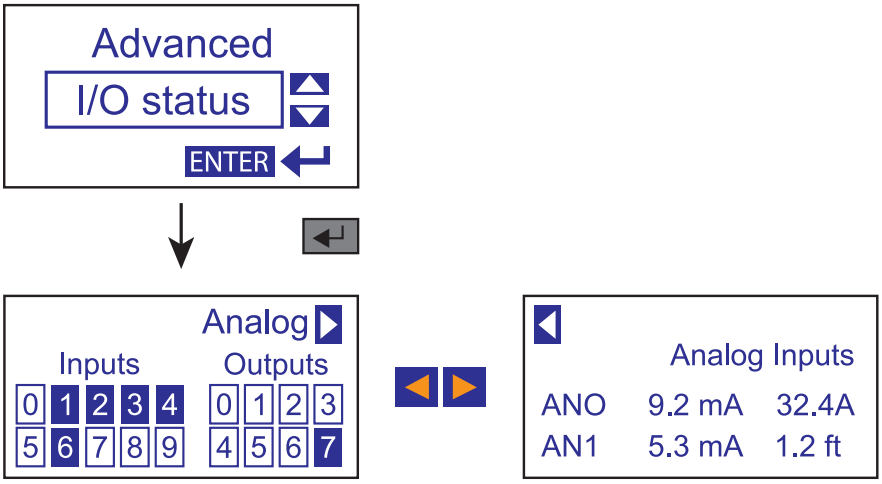
PUMP DATA (ADVANCED SETUP)

The Pump Data screen is for information only. It is a record of the pump HP, Volts and FLA. This data can be viewed remotely when connected to the Primex™ Pump Watch™ cellular monitoring system.



I/O STATUS (ADVANCED SETUP)

These screens can be used to view all the digital and analog inputs and relay output status. It is a good trouble-shooting feature. Digital inputs and output change color when ON.

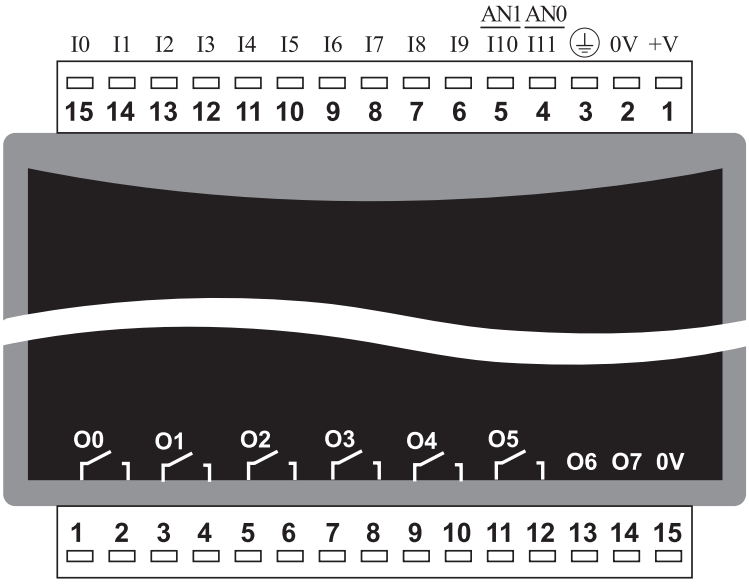


INPUT TERMINALS			DUPLEX TRANSDUCER BASED	DUPLEX FLOAT BASED
TERM	INPUT	TYPE	DESCRIPTION	DESCRIPTION
15	I0	DIGITAL PNP	ILLEGAL ENTRY (OPTIONAL)	ILLEGAL ENTRY (OPTIONAL) PUMP 1 IN AUTO MODE
14	I1	DIGITAL PNP	PUMP 1 IN AUTO MODE	
13	I2	DIGITAL PNP	PUMP 2 IN AUTO MODE	PUMP 2 IN AUTO MODE
12	I3	DIGITAL PNP	PUMP 1 RUNNING	PUMP 1 RUNNING
11	I4	DIGITAL PNP	PUMP 2 RUNNING	PUMP 2 RUNNING
10	I5	DIGITAL PNP	POWER FAIL	POWER FAIL
9	I6	DIGITAL PNP	LOW FLOAT (BACKUP)	STOP ALL PUMP FLOAT
8	I7	DIGITAL PNP		START LEAD PUMP FLOAT
7	I8	DIGITAL PNP		START LAG PUMP FLOAT
6	I9	DIGITAL PNP	HIGH FLOAT (BACKUP)	HIGH LEVEL FLOAT
5	AN1	4-20 mA	LEVEL TRANSDUCER	NOT USED
4	AN0	4-20 mA	MOTOR AMPS	MOTOR AMPS
3	GRND		GROUND	GROUND
2	0V		POWER SUPPLY 0V	POWER SUPPLY 0V
1	24V		POWER SUPPLY +24Vdc	POWER SUPPLY +24Vdc

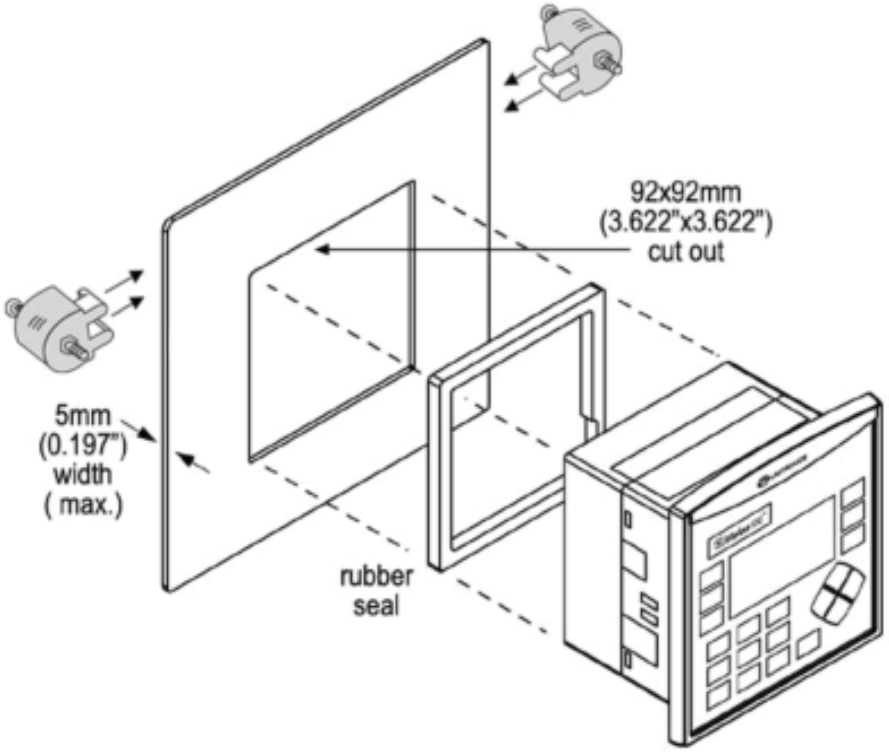
OUTPUT TERMINALS			DUPLEX TRANSDUCER BASED	DUPLEX FLOAT BASED
TERM	INPUT	TYPE	DESCRIPTION	DESCRIPTION
1	O0	RELAY C	RUN PUMP 1 IN AUTO	RUN PUMP 1 IN AUTO
2		RELAY NO		
3	O1	RELAY C	RUN PUMP 2 IN AUTO	RUN PUMP 2 IN AUTO
4		RELAY NO		
5	O2	RELAY C	GENERAL ALARM	GENERAL ALARM
6		RELAY NO		
7	O3	RELAY C	GENERAL ALARM (USER)	GENERAL ALARM (USER)
8		RELAY NO		
9	O4	RELAY C	PUMP 1 FAULT (USER)	PUMP 1 FAULT (USER)
10		RELAY NO		
11	O5	RELAY C	PUMP 2 FAULT (USER)	PUMP 2 FAULT (USER)
12		RELAY NO		
13	O6	TRANSISTOR	HIGH LEVEL XDCR (USER)	NOT USED
14	O7	TRANSISTOR	LOW LEVEL FLOAT (XDCR MODE) - (USER)	NOT USED

I/O TERMINAL CONFIGURATION

I/O Configuration



DIMENSIONS AND MOUNTING



NOTES

PRIMEX™

MUNICIPAL WATER CONTROL SOLUTIONS

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